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Title: BIOCATALYST AND ITS PRODUCTION
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Abstract:
PURPOSE: To obtain a spherical biocatalyst high in mechanical strength and secured in stability, by including an enzymatically active substance, cationic polyelectrolyte, polyvalent anion and silicic acid.
CONSTITUTION: First, a suspension A is prepared by mixing an enzymatically active substance such as cells belonging to Proteus vulgaris sp. and/or Proteus mirabilis sp., 2-15 wt.% of precipitated silicic acid 5-50 μm in average particle size and -100 g/100 mL in average bulk density, an aqueous buffer solution, and 0.3-1.5 wt.% of a cationic polyelectrolyte such as chitosan 50,000-3, 000,000 in molecular weight together through avoiding bubble formation. Secondly, the suspension A is dripped into about three volume times of a crosslinking agent bath B containing 0.5-10 w/v% of a tripolyphosphate such as a polyvalent anion to effect formation of biocatalyst beads. Finally, the beads are contracted and solidified and, as necessary, separated from the B-component, thus obtaining the objective spherical biocatalyst high in mechanical strength and capable of transforming e.g. an α-ketocarboxylic acid into the corresponding α- hydroxycarboxylic acid.